FEMS Microbiology Letters

AUTHOR INDEX VOLUME 52

Ahmad, S. and Jensen, R.A.
The stable evolutionary fixation of a bifunctional tyrosine-pathway protein in enteric bacteria (52) 109
Alexander, M., see Jones, S.H. (52) 121
Anderson, A.J., see Haywood, G.W. (52) 259
Anderson, A.J., see Haywood, G.W. (52) 91
Andreesen, J.R., see Freudenberg, W. (52) 13
Arfman, N., see Dijkhuizen, L. (52) 209
Attwood, M.M., see Dijkhuizen, L. (52) 209
Audholia, S., see Bisen, P.S. (52) 225
Aukrust, T. and Nes, I.F.
Transformation of *Lactobacillus plantarum* with the plasmid pTV1 by electroporation (52) 127

Bartholomew, B., see Hughes, S. (52) 7
Bautsch, W., Grothues, D. and Tümmler, B.
Genome fingerprinting of *Pseudomonas aeruginosa* by two-dimensional field inversion gel electrophoresis (52) 255
Beesley, J.E., see O'Callaghan, D. (52) 269
Bisen, P.S., Audholia, S., Shukla, H.D., Gupta, A. and Singh, D.P.
Evidence for photosynthetic independence of viral multiplication in cyanophage LPP-1 infected cyanobacterium *Phormidium uncinatum* (52) 225
Biville, F., Mazodier, P., Gasser, F., Van Kleef, M.A.G. and Duine, J.A.
Physiological properties of a pyrroloquinoline quinone mutant of *Methylobacterium organophilum* (52) 53
Bolton, B.J., see Thomm, M. (52) 229
Boulnois, G., see O'Callaghan, D. (52) 269
Boutelet, F., see L'Hote, H. (52) 219
Bradley, D.E., Finlayson, M. and March, S.
Presence of type I-like fimbriae and thin filaments on diarrhoeagenic *Escherichia coli* (52) 139
Braun, V., see Chehade, H. (52) 177
Brooke, A.G., see Dijkhuizen, L. (52) 209

Chehade, H. and Braun, V.
Iron-regulated synthesis and uptake of colicin V (52) 177
Chistoserdov, A.Y., see Kiriuchin, M.Y. (52) 199
Chu, L., see Haywood, G.W. (52) 259
Chu, L., see Haywood, G.W. (52) 91
Collins, M.D., see Suzuki, K.-i. (52) 33
Cooper, R.A., see Ferrer, E. (52) 155
Cooper, R.A., see Ferrer, E. (52) 161

Daniel, S.L., Wu, Z. and Drake, H.L.
Growth of thermophilic acetogenic bacteria on methoxylated aromatic acids (52) 25
Dawes, E.A., see Haywood, G.W. (52) 259
Dawes, E.A., see Haywood, G.W. (52) 91
Day, M.J., see Rochelle, P.A. (52) 245
Dequin, S., see L'Hote, H. (52) 219
Dijkhuizen, L., Arfman, N., Attwood, M.M., Brooke, A.G., Harder, W. and Watling, E.M.
Isolation and initial characterization of thermotolerant methylotrophic *Bacillus* strains (52) 209
Dougan, G., see O'Callaghan, D. (52) 269
Drake, H.L., see Daniel, S.L. (52) 25
Drake, H.L., see Heinonen, J.K. (52) 205
Duine, J.A., see Biville, F. (52) 53

Earp, D.J. and Ellar, D.J.
Assessment of the toxicity of the cloned 27 kDa toxin of *Bacillus thuringiensis* var. *morrisoni* strain PG14 (52) 29
Edelman, A., Joliff, G., Klier, A. and Rapoport, G.
A system for the inducible secretion of proteins from *Bacillus subtilis* during logarithmic growth (52) 117
Edwards, C., see James, P.D.A. (52) 1
Ellar, D.J., see Earp, D.J. (52) 29

Ferrer, E. and Cooper, R.A.
A single succinic semialdehyde dehydrogenase is involved in 4-hydroxyphenylacetate and 4-aminobutyrate catabolism in *Klebsiella pneumoniae* M5a1 (52) 161
Ferrer, E. and Cooper, R.A.
Studies with a cloned *Escherichia coli* C 2-oxo-hept-3-ene-1,7-dioate hydratase gene (52) 155
Finlayson, M., see Bradley, D.E. (52) 139
Freer, S.N., see Greene, R.V. (52) 73
Freudenberg, W., König, K. and Andreesen, J.R.
Nicotine dehydrogenase from *Arthrobacter oxidans*: A molybdenum-containing hydroxylase (52) 13
Frey, G., see Thomm, M. (52) 229
Fry, J.C., see Rochelle, P.A. (52) 245

García, E., see García, J.L. (52) 133
García, J.L., García, E., Sánchez-Puelles, J.M. and López, R.
Identification of a lytic enzyme of *Clostridium acetobutylicum* that degrades choline-containing pneumococcal cell walls (52) 133
Gasser, F., see Biville, F. (52) 53
Gladman, P., see Worobec, E.A. (52) 235
Gogorova, L., see Labudova, I. (52) 193
Gordon, S.H., see Greene, R.V. (52) 73
Greene, R.V., Freer, S.N. and Gordon, S.H.
Determination of solid-state fungal growth by Fourier transform infrared-photoacoustic spectroscopy (52) 73

0378-1097/88/$03.50 © 1988 Federation of European Microbiological Societies

Grothues, D., see Bautsch, W. (52) 255
Gupta, A., see Bisen, P.S. (52) 225

Halling, P.J., see McLellan, D.W. (52) 215
Hancock, R.E.W., see Worobec, E.A. (52) 235
Harder, W., see Dijkhuizen, L. (52) 209
Hardy, J.C., see Hughes, S. (52) 7
Haywood, G.W., Anderson, A.J., Chu, L. and Dawes, E.A.
Characterization of two 3-ketothiolases possessing differing substrate specificities in the polyhydroxyalkanoate synthesizing organism *Alcaligenes eutrophus* (52) 91
Haywood, G.W., Anderson, A.J., Chu, L. and Dawes, E.A.
The role of NADH- and NADPH-linked acetoacetyl-CoA reductases in the poly-3-hydroxybutyrate synthesizing organism *Alcaligenes eutrophus* (52) 259
Hecker, M., see Mach, H. (52) 189
Heinonen, J.K. and Drake, H.L.
Comparative assessment of inorganic pyrophosphate and pyrophosphatase levels of *Escherichia coli, Clostridium pasteurianum,* and *Clostridium thermoaceticum* (52) 205
Heyde, M., Lazzaroni, J.-C., Magnouloux-Blanc, B. and Portalier, R.
Regulation of porin gene expression over a wide range of extracellular pH in *Escherichia coli* K-12: Influence of a *tolA* mutation (52) 59
Honda, T., see Tsuji, T. (52) 79
Hopper, D.J., see Reeve, C.D. (52) 251
Horiguchi, Y., see Sugii, S. (52) 85
Hughes, S., Bartholomew, B., Hardy, J.C. and Kramer, J.M.
Potential application of a HEp-2 cell assay in the investigation of *Bacillus cereus* emetic-syndrome food poisoning (52) 7

Iijima, E., see Suzuki, K.-i. (52) 33
Imanaka, T. and Takagaki, K.
Cloning in *Bacillus subtilis* of temperature-dependent promoter fragments from *Bacillus stearothermophilus* and *Bacillus subtilis* (52) 103

Jacoby, G.A., see Yang, Y. (52) 97
James, P.D.A. and Edwards, C.
The effects of cultural conditions on growth and secondary metabolism in *Streptomyces thermoviolaceus* (52) 1
Jensen, R.A., see Ahmad, S. (52) 109
Joliff, G., see Edelman, A. (52) 117
Jones, S.H. and Alexander, M.
Phosphorus enhancement of mineralization of low concentrations of *p*-nitrophenol by *Flavobacterium* sp. in lake water (52) 121
Joya, J.E., see Tsuji, T. (52) 79

Kessler, C., see Thomm, M. (52) 229
Kiriuchin, M.Y., Kletsova, L.V., Chistoserdov, A.Y. and Tsygankov, Y.D.
Properties of glucose 6-phosphate and 6-phosphogluconate dehydrogenases of the obligate methylotroph *Methylobacillus flagellatum KT* (52) 199
Kletsova, L.V., see Kiriuchin, M.Y. (52) 199
Klier, A., see Edelman, A. (52) 117
Komagata, K., see Suzuki, K.-i. (52) 33
König, K., see Freudenberg, W. (52) 13
Kramer, J.M., see Hughes, S. (52) 7

Labudova, I. and Gogorova, L.
Biological control of phytopathogenic fungi through lytic action of *Trichoderma* species (52) 193
Laplace, F., Müller, J., Wollweber, L. and Malke, H.
Expression of heterologous genes in *Pseudomonas putida* under the control of streptococcal promoters (52) 275
Larkin, M.J.
The specificity of 1-naphthol oxygenases from three bacterial isolates, *Pseudomonas* spp. (NCIB 12042 and 12043) and *Rhodococcus* sp. (NCIB 12038) isolated from garden soil (52) 173
Laue, F., see Thomm, M. (52) 229
Lazzaroni, J.-C., see Heyde, M. (52) 59
L'Hote, H., Dequin, S. and Boutelet, F.
Identification of some chromosomes of the brewing yeast *Saccharomyces uvarum* (52) 219
Lifely, M.R., see O'Callaghan, D. (52) 269
Livermore, D.M., see Yang, Y. (52) 97
Lönnroth, I., see Torres, J.F. (52) 41
López, R., see García, J.L. (52) 133

Mach, F., see Mach, H. (52) 189
Mach, H., Hecker, M. and Mach, F.
Physiological studies on cAMP synthesis in *Bacillus subtilis* (52) 189
Magnouloux-Blanc, B., see Heyde, M. (52) 59
Malke, H., see Laplace, F. (52) 275
March, S., see Bradley, D.E. (52) 139
Maskell, D., see O'Callaghan, D. (52) 269
Mazodier, P., see Biville, F. (52) 53
McLellan, D.W. and Halling, P.J.
Acid-tolerant poly(3-hydroxybutyrate) hydrolases from moulds (52) 215
Michalski, W.P. and Nicholas, D.J.D.
Identification of two new denitrifying strains of *Rhodobacter sphaeroides* (52) 239
Miwatani, T., see Tsuji, T. (52) 79
Moreman, A.D., see Reeve, C.D. (52) 251
Müller, J., see Laplace, F. (52) 275

Nes, I.F., see Aukrust, T. (52) 127
Nicholas, D.J.D., see Michalski, W.P. (52) 239

O'Callaghan, D., Maskell, D., Beesley, J.E., Lifely, M.R., Roberts, I., Boulnois, G. and Dougan, G.
Characterisation and in vivo behaviour of a *Salmonella typhimurium aro*A strain expressing *Escherichia coli* K1 polysaccharide (52) 269
Ochi, K., see Tsurumi, Y. (52) 265
O'Connor, C.D., see Rhen, M. (52) 145
Okuhara, M., see Tsurumi, Y. (52) 265

Park, I., Saurin, W. and Ullmann, A.
A highly conserved 530 base-pair repeated DNA sequence specific for *Bordetella pertussis* (52) 19
Portalier, R., see Heyde, M. (52) 59

Rapoport, G., see Edelman, A. (52) 117
Reeve, C.D., Moreman, A.D. and Hopper, D.J.
Alkylphenol hydroxylases in the oxidation of *p*-cresol, 4-ethylphenol and 4-*n*-propylphenol by *Pseudomonas putida* JD1 (52) 251
Rhen, M., O'Connor, C.D. and Sukupolvi, S.
The outer membrane permeability mutation of the virulence-associated plasmid of *Salmonella typhimurium* is located in a *tra*T-like gene (52) 145
Roberts, I., see O'Callaghan, D. (52) 269
Rochelle, P.A., Day, M.J. and Fry, J.C.
Structural rearrangements of a broad host range plasmid encoding mercury resistance from an epilithic isolate of *Pseudomonas cepacia* (52) 245
Rubinstein, C.P. and Sanchez-Rivas, C.
Production of protoplasts by autolytic induction in *Bacillus thuringiensis*: Transformation and interspecific fusion (52) 67

Sánchez-Puelles, J.M., see García, J.L. (52) 133
Sanchez-Rivas, C., see Rubinstein, C.P. (52) 67
Saurin, W., see Park, I. (52) 19
Shafer, W.M., see Stephens, D.S. (52) 47
Shukla, H.D., see Bisen, P.S. (52) 225
Siehnel, R.J., see Worobec, E.A. (52) 235
Singh, D.P., see Bisen, P.S. (52) 225
Smith, R.L., Tabita, F.R. and Van Baalen, C.
Hydrogen uptake in *Anabaena* sp. strain CA does not protect nitrogenase from inactivation by hyperbaric oxygen (52) 183
Stephens, D.S., Whitney, A.M. and Shafer, W.M.
Cleavage of gonococcal pilin and alteration of common pilin epitopes by human neutrophil lysosomal elastase (52) 47
Stetter, K.O., see Thomm, M. (52) 229
Sugii, S. and Horiguchi, Y.
Identification and isolation of the binding substance for *Clostridium perfringens* enterotoxin on Vero cells (52) 85
Sukupolvi, S., see Rhen, M. (52) 145
Suzuki, K.-i., Collins, M.D., Iijima, E. and Komagata, K.
Chemotaxonomic characterization of a radiotolerant bacterium, *Arthrobacter radiotolerans*: Description of *Rubrobacter radiotolerans* gen. nov., comb. nov. (52) 33

Tabita, F.R., see Smith, R.L. (52) 183
Takagaki, K., see Imanaka, T. (52) 103
Thomm, M., Frey, G., Bolton, B.J., Laue, F., Kessler, C. and Stetter, K.O.
*Mvn*1: a restriction enzyme in the archaebacterium *Methanococcus vannielii* (52) 229
Torres, J.F. and Lönnroth, I.
Comparison of methods for the production and purification of toxin A from *Clostridium difficile* (52) 41
Tsuji, T., Joya, J.E., Yao, S., Honda, T. and Miwatani, T.
Purification and characterization of heat-labile enterotoxin isolated from chicken enterotoxigenic *Escherichia coli* (52) 79
Tsurumi, Y., Okuhara, M. and Ochi, K.
Changes in nucleotide pools during conidia formation of *Penicillium chrysogenum* in solid culture (52) 265
Tsygankov, Y.D., see Kiriuchin, M.Y. (52) 199
Tümmler, B., see Bautsch, W. (52) 255

Ullmann, A., see Park, I. (52) 19

Van Baalen, C., see Smith, R.L. (52) 183
Van der Drift, C., see Van de Wijngaard, W.M.H. (52) 165
Van de Wijngaard, W.M.H., Van der Drift, C. and Vogels, G.D.
Involvement of a corrinoid enzyme in methanogenesis from acetate in *Methanosarcina barkeri* (52) 165
Van Kleef, M.A.G., see Biville, F. (52) 53
Vogels, G.D., see Van de Wijngaard, W.M.H. (52) 165

Watling, E.M., see Dijkhuizen, L. (52) 209
Whitney, A.M., see Stephens, D.S. (52) 47
Wollweber, L., see Laplace, F. (52) 275
Worobec, E.A., Siehnel, R.J., Gladman, P. and Hancock, R.E.W.
Gene cloning and expression of the *Pseudomonas aeruginosa* periplasmic phosphate-binding protein (52) 235
Wu, Z., see Daniel, S.L. (52) 25

Yang, Y., Jacoby, G.A. and Livermore, D.M.
LXA-1: a new plasmid-mediated β-lactamase giving low-level resistance (52) 97
Yao, S., see Tsuji, T. (52) 79

FEMS Microbiology Letters

SUBJECT INDEX VOLUME 52

Acetoacetyl-CoA reductase
Alcaligenes eutrophus; poly-3-Hydroxybutyrate; Acetyl-CoA; NADH; NADPH (Haywood, G.W. (52) 259)

Acetoclastic reaction
Methanogenesis; *Methanosarcina barkeri*; Corrinoid enzyme; Methyltransferase (Van de Wijngaard, W.M.H. (52) 165)

Acetyl-CoA
Alcaligenes eutrophus; poly-3-Hydroxybutyrate; NADH; NADPH; Acetoacetyl-CoA reductase (Haywood, G.W. (52) 259)

***tolA* excretory mutant**
Escherichia coli; pH; Outer membrane protein; Porin; Gene expression (Heyde, M. (52) 59)

Alcaligenes eutrophus
3-Ketothiolase; acetyl-CoA acetyltransferase (Haywood, G.W. (52) 91)

poly-3-Hydroxybutyrate; Acetyl-CoA; NADH; NADPH; Acetoacetyl-CoA reductase (Haywood, G.W. (52) 259)

***p*-Alkylphenol**
Flavocytochrome c; Hydroxylation (Reeve, C.D. (52) 251)

Amidase
Murein hydrolase; Evolution (García, J.L. (52) 133)

4-Aminobutyrate
Klebsiella pneumoniae; Succinic semialdehyde dehydrogenase; 4-Hydroxyphenylacetate (Ferrer, E. (52) 161)

cAMP
Bacillus subtilis; Oxygen limitation; Nitrate respiration; Energy starvation (Mach, H. (52) 189)

Antibiotic resistance
β-Lactamase; Plasmid; Enterobacteriaceae (Yang, Y. (52) 97)

Aquatic bacteria
Broad host range epilithic plasmid; Structural rearrangement; Mercury resistance; Integration into chromosome (Rochelle, P.A. (52) 245)

Aromatic catabolism
Cloned gene; *Escherichia coli*; 2-Oxo-hept-3-ene-1,7-dioate hydratase (Ferrer, E. (52) 155)

Arthrobacter oxidans
Molybdenum; Molybdoenzyme; Nicotine dehydrogenase (Freudenberg, W. (52) 13)

Arthrobacter radiotolerans
Rubrobacter radiotolerans; Chemotaxonomy; Lipid; Murein; DNA (Suzuki, K.-i. (52) 33)

Autolysis
Bacillus thuringiensis; Protoplast; Cell fusion; Transformation (Rubinstein, C.P. (52) 67)

Bacillus cereus
Food poisoning; Emetic toxin; (HEp-2 cell assay) (Hughes, S. (52) 7)

Bacillus stearothermophilus
Bacillus subtilis; Promoter, temperature-dependent; (cloning) (Imanaka, T. (52) 103)

Bacillus subtilis
Bacillus stearothermophilus; Promoter, temperature-dependent; (cloning) (Imanaka, T. (52) 103)

Protein secretion; (*sacB*; translational fusion) (Edelman, A. (52) 117)

cAMP; Oxygen limitation; Nitrate respiration; Energy starvation (Mach, H. (52) 189)

Bacillus thuringiensis
δ-Endotoxin gene; Heterologous expression; Toxicity assay; Gene cloning (Earp, D.J. (52) 29)

Protoplast; Autolysis; Cell fusion; Transformation (Rubinstein, C.P. (52) 67)

Bifunctional protein
Entero bacteriaceae; Tyrosine biosynthesis; (Comparative enzymology) (Ahmad, S. (52) 109)

Binding substance
Enterotoxin; Vero cell; *Clostridium perfringens*; Diarrhoea (Sugii, S. (52) 85)

Biodegradation
Mineralization; Phosphorus; *p*-Nitrophenol; *Flavobacterium* sp.; Nutrient limitation (Jones, S.H. (52) 121)

0378-1097/88/$03.50 © 1988 Federation of European Microbiological Societies

Blunt-ended termini
Restriction endonuclease; *Tha*I isoschizomer; *Fnu*DII isoschizomer; Calf intestine alkaline phosphatase (CIAP); T4 polynucleotide kinase (T4 PNK); T4 DNA polymerase (T4 DNAP); T4 DNA ligase (T4 DNA *Lig*) (Thomm, M. (52) 229)

Bordetella pertussis
Repeated DNA sequence; Virulence determinant (Park, I. (52) 19)

Broad host range epilithic plasmid
Structural rearrangement; Mercury resistance; Integration into chromosome; Aquatic bacteria (Rochelle, P.A. (52) 245)

Calf intestine alkaline phosphatase (CIAP)
Restriction endonuclease; *Tha*I isoschizomer; *Fnu*DII isoschizomer; Blunt-ended termini; T4 polynucleotide kinase (T4 PNK); T4 DNA polymerase (T4 DNAP); T4 DNA ligase (T4 DNA *Lig*) (Thomm, M. (52) 229)

Cell fusion
Bacillus thuringiensis; Protoplast; Autolysis; Transformation (Rubinstein, C.P. (52) 67)

Chemotaxonomy
Arthrobacter radiotolerans; *Rubrobacter radiotolerans*; Lipid; Murein; DNA (Suzuki, K.-i. (52) 33)

Chromosome
Yeast; *Saccharomyces uvarum*; Strain identification; Orthogonal field alternation gel electrophoresis (L'Hote, H. (52) 219)

Cloned gene
Aromatic catabolism; *Escherichia coli*; 2-Oxo-hept-3-ene-1,7-dioate hydratase (Ferrer, E. (52) 155)

Clostridium difficile
Enterotoxin; Cytotoxin; Toxin A (Torres, J.F. (52) 41)

Clostridium pasteurianum
Pyrophosphate; Pyrophosphatase; *Escherichia coli*; *Clostridium thermoaceticum* (Heinonen, J.K. (52) 205)

Clostridium perfringens
Enterotoxin; Binding substance; Vero cell; Diarrhoea (Sugii, S. (52) 85)

Clostridium thermoaceticum
Clostridium thermoautotrophicum; Vanillate; Syringate; Phenylmethyl ether (Daniel, S.L. (52) 25)

Pyrophosphate; Pyrophosphatase; *Escherichia coli*; *Clostridium pasteurianum* (Heinonen, J.K. (52) 205)

Clostridium thermoautotrophicum
Clostridium thermoaceticum; Vanillate; Syringate; Phenylmethyl ether (Daniel, S.L. (52) 25)

acetyl-CoA acetyltransferase
Alcaligenes eutrophus; 3-Ketothiolase (Haywood, G.W. (52) 91)

Colicin V
Escherichia coli; Iron regulation (Chehade, H. (52) 177)

Corrinoid enzyme
Methanogenesis; *Methanosarcina barkeri*; Acetoclastic reaction; Methyltransferase (Van de Wijngaard, W.M.H. (52) 165)

Cyanobacterium
Uptake hydrogenase; Nitrogenase; Oxygen inactivation (Smith, R.L. (52) 183)

Cyanophage multiplication
Photosynthesis; *Phormidium uncinatum* (Bisen, P.S. (52) 225)

Cytotoxin
Enterotoxin; Toxin A; *Clostridium difficile* (Torres, J.F. (52) 41)

Denitrification
Rhodobacter sphaeroides; Immunological technique; Plasmid (Michalski, W.P. (52) 239)

Diarrhoea
Enterotoxin; Binding substance; Vero cell; *Clostridium perfringens* (Sugii, S. (52) 85)

Diarrhoeagenic
Fimbria; *Escherichia coli* (Bradley, D.E. (52) 139)

DNA
Arthrobacter radiotolerans; *Rubrobacter radiotolerans*; Chemotaxonomy; Lipid; Murein (Suzuki, K.-i. (52) 33)

Elastase
Gonococcal pilin; Human neutrophil protease; Neisseria gonorrhoeae (Stephens, D.S. (52) 47)

Emetic toxin
Bacillus cereus; Food poisoning; (HEp-2 cell assay) (Hughes, S. (52) 7)

δ-Endotoxin gene
Bacillus thuringiensis; Heterologous expression; Toxicity assay; Gene cloning (Earp, D.J. (52) 29)

Energy starvation
Bacillus subtilis; cAMP; Oxygen limitation; Nitrate respiration (Mach, H. (52) 189)

Enterobacteriaceae
β-Lactamase; Plasmid; Antibiotic resistance (Yang, Y. (52) 97)

Enterobacteriaceae
Tyrosine biosynthesis; Bifunctional protein; (Comparative enzymology) (Ahmad, S. (52) 109)

Enterotoxin
Cytotoxin; Toxin A; *Clostridium difficile* (Torres, J.F. (52) 41)

Binding substance; Vero cell; *Clostridium perfringens*; Diarrhoea (Sugii, S. (52) 85)

Escherichia coli
pH; Outer membrane protein; *tol*A excretory mutant; Porin; Gene expression (Heyde, M. (52) 59)

Heat-labile enterotoxin; (purification characterization) (Tsuji, T. (52) 79)

Fimbria; Diarrhoeagenic (Bradley, D.E. (52) 139)

Cloned gene; Aromatic catabolism; 2-Oxo-hept-3-ene-1,7-dioate hydratase (Ferrer, E. (52) 155)

Colicin V; Iron regulation (Chehade, H. (52) 177)

Pyrophosphate; Pyrophosphatase; *Clostridium pasteurianum*; *Clostridium thermoaceticum* (Heinonen, J.K. (52) 205)

Evolution
Murein hydrolase; Amidase (García, J.L. (52) 133)

Field inversion gel electrophoresis
Pseudomonas aeruginosa; Genome fingerprinting; Genome size (Bautsch, W. (52) 255)

Fimbria
Diarrhoeagenic; *Escherichia coli* (Bradley, D.E. (52) 139)

***Flavobacterium* sp.**
Biodegradation; Mineralization; Phosphorus; *p*-Nitrophenol; Nutrient limitation (Jones, S.H. (52) 121)

Flavocytochrome c
p-Alkylphenol; Hydroxylation (Reeve, C.D. (52) 251)

***Fnu*DII isoschizomer**
Restriction endonuclease; *Tha*I isoschizomer; Blunt-ended termini; Calf intestine alkaline phosphatase (CIAP); T4 polynucleotide kinase (T4 PNK); T4 DNA polymerase (T4 DNAP); T4 DNA ligase (T4 DNA *Lig*) (Thomm, M. (52) 229)

Food poisoning
Bacillus cereus; Emetic toxin; (HEp-2 cell assay) (Hughes, S. (52) 7)

Fourier transform infrared spectroscopy
Photoacoustic spectroscopy; Insoluble substrate; Fungal growth (Greene, R.V. (52) 73)

Fungal differentiation
Penicillium chrysogenum; Nucleotide pool size (Tsurumi, Y. (52) 265)

Fungal growth
Fourier transform infrared spectroscopy; Photoacoustic spectroscopy; Insoluble substrate (Greene, R.V. (52) 73)

Gene cloning
Bacillus thuringiensis; δ-Endotoxin gene; Heterologous expression; Toxicity assay (Earp, D.J. (52) 29)

Gene expression
Escherichia coli; pH; Outer membrane protein; *tol*A excretory mutant; Porin (Heyde, M. (52) 59)

Pseudomonas putida; Streptococcal promoter; Streptokinase; Interferon-α1 (Laplace, F. (52) 275)

Genome fingerprinting
Pseudomonas aeruginosa; Genome size; Field inversion gel electrophoresis (Bautsch, W. (52) 255)

Genome size
Pseudomonas aeruginosa; Genome fingerprinting; Field inversion gel electrophoresis (Bautsch, W. (52) 255)

Glucose 6-phosphate dehydrogenase
Methylobacillus flagellatum; Obligate methylotroph; 6-Phosphogluconate dehydrogenase (Kiriuchin, M.Y. (52) 199)

Gonococcal pilin
Human neutrophil protease; Elastase; Neisseria gonorrhoeae (Stephens, D.S. (52) 47)

Granaticin
Streptomyces thermoviolaceus; Secondary metabolism; Metabolic regulation; (Growth); (pH) (James, P.D.A. (52) 1)

pH
Escherichia coli; Outer membrane protein; *tol*A excretory mutant; Porin; Gene expression (Heyde, M. (52) 59)

Heat-labile enterotoxin
Escherichia coli; (purification characterization) (Tsuji, T. (52) 79)

Heterologous expression
Bacillus thuringiensis; δ-Endotoxin gene; Toxicity assay; Gene cloning (Earp, D.J. (52) 29)

Human neutrophil protease
Gonococcal pilin; Elastase; Neisseria gonorrhoeae (Stephens, D.S. (52) 47)

poly-3-Hydroxybutyrate
Alcaligenes eutrophus; Acetyl-CoA; NADH; NADPH; Acetoacetyl-CoA reductase (Haywood, G.W. (52) 259)

Hydroxylation
Flavocytochrome c; *p*-Alkylphenol (Reeve, C.D. (52) 251)

4-Hydroxyphenylacetate
Klebsiella pneumoniae; Succinic semialdehyde dehydrogenase; 4-Aminobutyrate (Ferrer, E. (52) 161)

Immunological technique
Rhodobacter sphaeroides; Denitrification; Plasmid (Michalski, W.P. (52) 239)

Infection
Salmonella typhimurium; K1 polysaccharide; Polysaccharide synthesis; Vaccination; (*Escherichia coli*); (Mouse) (O'Callaghan, D. (52) 269)

Insoluble substrate
Fourier transform infrared spectroscopy; Photoacoustic spectroscopy; Fungal growth (Greene, R.V. (52) 73)

Integration into chromosome
Broad host range epilithic plasmid; Structural rearrangement; Mercury resistance; Aquatic bacteria (Rochelle, P.A. (52) 245)

Interferon-α1
Pseudomonas putida; Gene expression; Streptococcal promoter; Streptokinase (Laplace, F. (52) 275)

Iron regulation
Colicin V; *Escherichia coli* (Chehade, H. (52) 177)

3-Ketothiolase
Alcaligenes eutrophus; acetyl-CoA acetyltransferase (Haywood, G.W. (52) 91)

Klebsiella pneumoniae
Succinic semialdehyde dehydrogenase; 4-Hydroxyphenylacetate; 4-Aminobutyrate (Ferrer, E. (52) 161)

K1 polysaccharide
Salmonella typhimurium; Polysaccharide synthesis; Infection; Vaccination; (*Escherichia coli*); (Mouse) (O'Callaghan, D. (52) 269)

β-Lactamase
Plasmid; Antibiotic resistance; Enterobacteriaceae (Yang, Y. (52) 97)

Lactobacillus plantarum
Transformation; Transposition (Aukrust, T. (52) 127)

Lipid
Arthrobacter radiotolerans; *Rubrobacter radiotolerans*; Chemotaxonomy; Murein; DNA (Suzuki, K.-i. (52) 33)

Lytic action
Phytopathogenic fungi; *Trichoderma*; Mycoparasitism (Labudova, I. (52) 193)

Mercury resistance
Broad host range epilithic plasmid; Structural rearrangement; Integration into chromosome; Aquatic bacteria (Rochelle, P.A. (52) 245)

Metabolic regulation
Streptomyces thermoviolaceus; Secondary metabolism; Granaticin; (Growth); (pH) (James, P.D.A. (52) 1)

Methanogenesis
Methanosarcina barkeri; Acetoclastic reaction; Corrinoid enzyme; Methyltransferase (Van de Wijngaard, W.M.H. (52) 165)

Methanol
Methylotrophic bacilli; Thermotolerant methylotrophic bacteria (Dijkhuizen, L. (52) 209)

Methanol dehydrogenase
Methylobacterium organophilum; Pyrroloquinoline quinone; Quinoprotein; Methylamine oxidation (Biville, F. (52) 53)

Methanosarcina barkeri
Methanogenesis; Acetoclastic reaction; Corrinoid enzyme; Methyltransferase (Van de Wijngaard, W.M.H. (52) 165)

Methylamine oxidation
Methylobacterium organophilum; Pyrroloquinoline quinone; Quinoprotein; Methanol dehydrogenase (Biville, F. (52) 53)

Methylobacillus flagellatum
Obligate methylotroph; Glucose 6-phosphate dehydrogenase; 6-Phosphogluconate dehydrogenase (Kiriuchin, M.Y. (52) 199)

Methylobacterium organophilum
Pyrroloquinoline quinone; Quinoprotein; Methanol dehydrogenase; Methylamine oxidation (Biville, F. (52) 53)

Methylotrophic bacilli
Methanol; Thermotolerant methylotrophic bacteria (Dijkhuizen, L. (52) 209)

Methyltransferase
Methanogenesis; *Methanosarcina barkeri*; Acetoclastic reaction; Corrinoid enzyme (Van de Wijngaard, W.M.H. (52) 165)

Mineralization
Biodegradation; Phosphorus; *p*-Nitrophenol; *Flavobacterium* sp.; Nutrient limitation (Jones, S.H. (52) 121)

Molybdenum
Arthrobacter oxidans; Molybdoenzyme; Nicotine dehydrogenase (Freudenberg, W. (52) 13)

Molybdoenzyme
Arthrobacter oxidans; Molybdenum; Nicotine dehydrogenase (Freudenberg, W. (52) 13)

Murein
Arthrobacter radiotolerans; *Rubrobacter radiotolerans*; Chemotaxonomy; Lipid; DNA (Suzuki, K.-i. (52) 33)

Murein hydrolase
Amidase; Evolution (García, J.L. (52) 133)

Mycoparasitism
Phytopathogenic fungi; *Trichoderma*; Lytic action (Labudova, I. (52) 193)

NADH
Alcaligenes eutrophus; poly-3-Hydroxybutyrate; Acetyl-CoA; NADPH; Acetoacetyl-CoA reductase (Haywood, G.W. (52) 259)

NADPH
Alcaligenes eutrophus; poly-3-Hydroxybutyrate; Acetyl-CoA; NADH; Acetoacetyl-CoA reductase (Haywood, G.W. (52) 259)

1-Naphthol oxygenase
Pseudomanas sp; *Rhodococcus* sp (Larkin, M.J. (52) 173)

Neisseria gonorrhoeae
Gonococcal pilin; Human neutrophil protease; Elastase (Stephens, D.S. (52) 47)

Nicotine dehydrogenase
Arthrobacter oxidans; Molybdenum; Molybdoenzyme (Freudenberg, W. (52) 13)

Nitrate respiration
Bacilhs subtilis; cAMP; Oxygen limitation; Energy starvation (Mach, H. (52) 189)

Nitrogenase
Cyanobacterium; Uptake hydrogenase; Oxygen inactivation (Smith, R.L. (52) 183)

***p*-Nitrophenol**
Biodegradation; Mineralization; Phosphorus; *Flavobacterium* sp.; Nutrient limitation (Jones, S.H. (52) 121)

Nucleotide pool size
Penicillium chrysogenum; Fungal differentiation (Tsurumi, Y. (52) 265)

Nutrient limitation
Biodegradation; Mineralization; Phosphorus; *p*-Nitrophenol; *Flavobacterium* sp. (Jones, S.H. (52) 121)

Obligate methylotroph
Methylobacillus flagellatum; Glucose 6-phosphate dehydrogenase; 6-Phosphogluconate dehydrogenase (Kiriuchin, M.Y. (52) 199)

Orthogonal field alternation gel electrophoresis
Yeast; *Saccharomyces uvarum*; Strain identification; Chromosome (L'Hote, H. (52) 219)

Outer membrane permeability
Salmonella typhimurium; Virulence plasmid; *tra*T protein (Rhen, M. (52) 145)

Outer membrane protein
Escherichia coli; pH; *tol*A excretory mutant; Porin; Gene expression (Heyde, M. (52) 59)

2-Oxo-hept-3-ene-1,7-dioate hydratase
Cloned gene; Aromatic catabolism; *Escherichia coli* (Ferrer, E. (52) 155)

Oxygen inactivation
Cyanobacterium; Uptake hydrogenase; Nitrogenase (Smith, R.L. (52) 183)

Oxygen limitation
Bacillus subtilis; cAMP; Nitrate respiration; Energy starvation (Mach, H. (52) 189)

Penicillium chrysogenum
Fungal differentiation; Nucleotide pool size (Tsurumi, Y. (52) 265)

Phenylmethyl ether
Clostridium thermoaceticum; *Clostridium thermoautotrophicum*; Vanillate; Syringate (Daniel, S.L. (52) 25)

Phormidium uncinatum
Cyanophage multiplication; Photosynthesis (Bisen, P.S. (52) 225)

Phosphate-binding protein
Pseudomonas aeruginosa; *pstS* gene cloning (Worobec, E.A. (52) 235)

6-Phosphogluconate dehydrogenase
Methylobacillus flagellatum; Obligate methylotroph; Glucose 6-phosphate dehydrogenase (Kiriuchin, M.Y. (52) 199)

Phosphorus
Biodegradation; Mineralization; *p*-Nitrophenol; *Flavobacterium* sp.; Nutrient limitation (Jones, S.H. (52) 121)

Photoacoustic spectroscopy
Fourier transform infrared spectroscopy; Insoluble substrate; Fungal growth (Greene, R.V. (52) 73)

Photosynthesis
Cyanophage multiplication; *Phormidium uncinatum* (Bisen, P.S. (52) 225)

Phytopathogenic fungi
Trichoderma; Lytic action; Mycoparasitism (Labudova, I. (52) 193)

Plasmid
β-Lactamase; Antibiotic resistance; Enterobacteriaceae (Yang, Y. (52) 97)

Rhodobacter sphaeroides; Denitrification; Immunological technique (Michalski, W.P. (52) 239)

Poly(3-hydroxybutyrate) hydrolase
Pseudomonas delafieldii (McLellan, D.W. (52) 215)

Polysaccharide synthesis
Salmonella typhimurium; K1 polysaccharide; Infection; Vaccination; (*Escherichia coli*); (Mouse) (O'Callaghan, D. (52) 269)

Porin
Escherichia coli; pH; Outer membrane protein; *tol*A excretory mutant; Gene expression (Heyde, M. (52) 59)

Promoter, temperature-dependent
Bacillus stearothermophilus; *Bacillus subtilis*; (cloning) (Imanaka, T. (52) 103)

Protein secretion
Bacillus subtilis; (*sacB*; translational fusion) (Edelman, A. (52) 117)

Protoplast
Bacillus thuringiensis; Autolysis; Cell fusion; Transformation (Rubinstein, C.P. (52) 67)

***Pseudomanas* sp**
Rhodococcus sp; 1-Naphthol oxygenase (Larkin, M.J. (52) 173)

Pseudomonas aeruginosa
Phosphate-binding protein; *pstS* gene cloning (Worobec, E.A. (52) 235)

Genome fingerprinting; Genome size; Field inversion gel electrophoresis (Bautsch, W. (52) 255)

Pseudomonas delafieldii
Poly(3-hydroxybutyrate) hydrolase (McLellan, D.W. (52) 215)

Pseudomonas putida
Gene expression; Streptococcal promoter; Streptokinase; Interferon-α1 (Laplace, F. (52) 275)

Pyrophosphatase
Pyrophosphate; *Escherichia coli*; *Clostridium pasteurianum*; *Clostridium thermoaceticum* (Heinonen, J.K. (52) 205)

Pyrophosphate
Pyrophosphatase; *Escherichia coli*; *Clostridium pasteurianum*; *Clostridium thermoaceticum* (Heinonen, J.K. (52) 205)

Pyrroloquinoline quinone
Methylobacterium organophilum; Quinoprotein; Methanol dehydrogenase; Methylamine oxidation (Biville, F. (52) 53)

Quinoprotein
Methylobacterium organophilum; Pyrroloquinoline quinone; Methanol dehydrogenase; Methylamine oxidation (Biville, F. (52) 53)

Repeated DNA sequence
Bordetella pertussis; Virulence determinant (Park, I. (52) 19)

Restriction endonuclease
*Tha*I isoschizomer; *Fnu*DII isoschizomer; Blunt-ended termini; Calf intestine alkaline phosphatase (CIAP); T4 polynucleotide kinase (T4 PNK); T4 DNA polymerase (T4 DNAP); T4 DNA ligase (T4 DNA *Lig*) (Thomm, M. (52) 229)

Rhodobacter sphaeroides
Denitrification; Immunological technique; Plasmid (Michalski, W.P. (52) 239)

***Rhodococcus* sp**
Pseudomanas sp; 1-Naphthol oxygenase (Larkin, M.J. (52) 173)

Rubrobacter radiotolerans
Arthrobacter radiotolerans; Chemotaxonomy; Lipid; Murein; DNA (Suzuki, K.-i. (52) 33)

Saccharomyces uvarum
Yeast; Strain identification; Chromosome; Orthogonal field alternation gel electrophoresis (L'Hote, H. (52) 219)

Salmonella typhimurium
Virulence plasmid; *tra*T protein; Outer membrane permeability (Rhen, M. (52) 145)

K1 polysaccharide; Polysaccharide synthesis; Infection; Vaccination; (*Escherichia coli*); (Mouse) (O'Callaghan, D. (52) 269)

Secondary metabolism
Streptomyces thermoviolaceus; Metabolic regulation; Granaticin; (Growth); (pH) (James, P.D.A. (52) 1)

***pstS* gene cloning**
Phosphate-binding protein; *Pseudomonas aeruginosa* (Worobec, E.A. (52) 235)

Strain identification
Yeast; *Saccharomyces uvarum*; Chromosome; Orthogonal field alternation gel electrophoresis (L'Hote, H. (52) 219)

Streptococcal promoter
Pseudomonas putida; Gene expression; Streptokinase; Interferon-α1 (Laplace, F. (52) 275)

Streptokinase
Pseudomonas putida; Gene expression; Streptococcal promoter; Interferon-α1 (Laplace, F. (52) 275)

Streptomyces thermoviolaceus
Secondary metabolism; Metabolic regulation; Granaticin; (Growth); (pH) (James, P.D.A. (52) 1)

Structural rearrangement
Broad host range epilithic plasmid; Mercury resistance; Integration into chromosome; Aquatic bacteria (Rochelle, P.A. (52) 245)

Succinic semialdehyde dehydrogenase
Klebsiella pneumoniae; 4-Hydroxyphenylacetate; 4-Aminobutyrate (Ferrer, E. (52) 161)

Syringate
Clostridium thermoaceticum; *Clostridium thermoautotrophicum*; Vanillate; Phenylmethyl ether (Daniel, S.L. (52) 25)

T4 DNA ligase (T4 DNA *Lig*)
Restriction endonuclease; *Tha*I isoschizomer; *Fnu*DII isoschizomer; Blunt-ended termini; Calf intestine alkaline phosphatase (CIAP); T4 polynucleotide kinase (T4 PNK); T4 DNA polymerase (T4 DNAP) (Thomm, M. (52) 229)

T4 DNA polymerase (T4 DNAP)
Restriction endonuclease; *Tha*I isoschizomer; *Fnu*DII isoschizomer; Blunt-ended termini; Calf intestine alkaline phosphatase (CIAP); T4 polynucleotide kinase (T4 PNK); T4 DNA ligase (T4 DNA *Lig*) (Thomm, M. (52) 229)

***Tha*I isoschizomer**
Restriction endonuclease; *Fnu*DII isoschizomer; Blunt-ended termini; Calf intestine alkaline phosphatase (CIAP); T4 polynucleotide kinase (T4 PNK); T4 DNA polymerase (T4 DNAP); T4 DNA ligase (T4 DNA *Lig*) (Thomm, M. (52) 229)

Thermotolerant methylotrophic bacteria
Methanol; Methylotrophic bacilli (Dijkhuizen, L. (52) 209)

Toxicity assay
Bacillus thuringiensis; δ-Endotoxin gene; Heterologous expression; Gene cloning (Earp, D.J. (52) 29)

Toxin A
Enterotoxin; Cytotoxin; *Clostridium difficile* (Torres, J.F. (52) 41)

T4 polynucleotide kinase (T4 PNK)
Restriction endonuclease; *Tha*I isoschizomer; *Fnu*DII isoschizomer; Blunt-ended termini; Calf intestine alkaline phosphatase (CIAP); T4 DNA polymerase (T4 DNAP); T4 DNA ligase (T4 DNA *Lig*) (Thomm, M. (52) 229)

***tra*T protein**
Salmonella typhimurium; Virulence plasmid; Outer membrane permeability (Rhen, M. (52) 145)

Transformation
Bacillus thuringiensis; Protoplast; Autolysis; Cell fusion (Rubinstein, C.P. (52) 67)

Lactobacillus plantarum; Transposition (Aukrust, T. (52) 127)

Transposition
Lactobacillus plantarum; Transformation (Aukrust, T. (52) 127)

Trichoderma
Phytopathogenic fungi; Lytic action; Mycoparasitism (Labudova, I. (52) 193)

Tyrosine biosynthesis
Entero bacteriaceae; Bifunctional protein; (Comparative enzymology) (Ahmad, S. (52) 109)

Uptake hydrogenase
Cyanobacterium; Nitrogenase; Oxygen inactivation (Smith, R.L. (52) 183)

Vaccination
Salmonella typhimurium; K1 polysaccharide; Polysaccharide synthesis; Infection; (*Escherichia coli*); (Mouse) (O'Callaghan, D. (52) 269)

Vanillate
Clostridium thermoaceticum; *Clostridium thermoautotrophicum*; Syringate; Phenylmethyl ether (Daniel, S.L. (52) 25)

Vero cell
Enterotoxin; Binding substance; *Clostridium perfringens*; Diarrhoea (Sugii, S. (52) 85)

Virulence determinant
Repeated DNA sequence; *Bordetella pertussis* (Park, I. (52) 19)

Virulence plasmid
Salmonella typhimurium; *tra*T protein; Outer membrane permeability (Rhen, M. (52) 145)

Yeast
Saccharomyces uvarum; Strain identification; Chromosome; Orthogonal field alternation gel electrophoresis (L'Hote, H. (52) 219)